

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
17 June 2004 (17.06.2004)

PCT

(10) International Publication Number
WO 2004/051552 A3

(51) International Patent Classification⁷: **G06K 9/00**

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(21) International Application Number:
PCT/GB2003/005235

(22) International Filing Date:
28 November 2003 (28.11.2003)

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(25) Filing Language: English

(81) Designated States (*national*): JP, US.

(26) Publication Language: English

Published:
— with international search report

(30) Priority Data:
0227897.6 29 November 2002 (29.11.2002) GB

(88) Date of publication of the international search report:
26 August 2004

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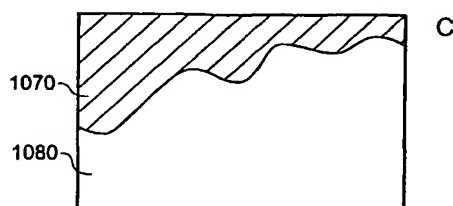
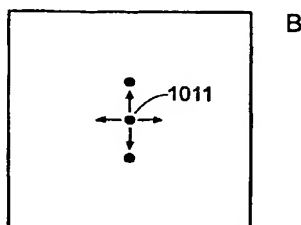
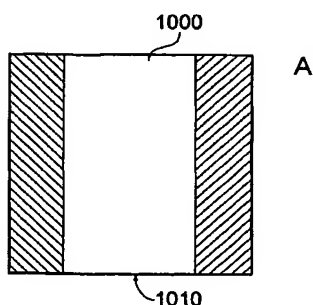
(15) Information about Correction:
Previous Correction:
see PCT Gazette No. 30/2004 of 22 July 2004, Section II

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FACE DETECTION



(57) Abstract: Face detection apparatus in which an image region of a test image is compared with data indicative of the presence of a face comprises: a pre-processor operable to identify low-difference regions of the test image where there exists less than a threshold image difference across groups of pixels within those regions; and a face detector operable to perform face detection on regions of the test image other than those identified by the pre-processor as low-difference regions.

INTERNATIONAL SEARCH REPORT

Intel Application No

PCT/GB 03/05235

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06K9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, COMPENDEX, WPI Data, IBM-TDB, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>MING-HSUAN YANG ET AL: "Detecting human faces in color images" IMAGE PROCESSING, 1998. ICIP 98. PROCEEDINGS. 1998 INTERNATIONAL CONFERENCE ON CHICAGO, IL, USA 4-7 OCT. 1998, LOS ALAMITOS, CA, USA, IEEE COMPUT. SOC, US, 4 October 1998 (1998-10-04), pages 127-130, XP001044562 ISBN: 0-8186-8821-1 Section "2.3 Geometric Analysis and Postprocessing"</p> <p style="text-align: center;">----- -/--</p>	1-14

☒ Further documents are listed in the continuation of box C.

☐ Patent family members are listed in annex.

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Date of the actual completion of the international search

19 May 2004

Date of mailing of the international search report

04/06/2004

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INTERNATIONAL SEARCH REPORT

Int. Application No
PCT/GB 03/05235

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>GARCIA C ET AL: "Face detection using quantized skin color regions merging and wavelet packet analysis" IEEE TRANS. MULTIMED. (USA), IEEE TRANSACTIONS ON MULTIMEDIA, SEPT. 1999, IEEE, USA, vol. 1, no. 3, September 1999 (1999-09), pages 264-277, XP001191136 ISSN: 1520-9210 page 269, left-hand column, paragraph 2 - right-hand column, paragraph 2; figure 5</p>	1-14
A	<p>ABDEL-MOTTALEB M ET AL: "Face detection in complex environments from color images" IMAGE PROCESSING, 1999. ICIP 99. PROCEEDINGS. 1999 INTERNATIONAL CONFERENCE ON KOBE, JAPAN 24-28 OCT. 1999, PISCATAWAY, NJ, USA, IEEE, US, 24 October 1999 (1999-10-24), pages 622-626, XP010368788 ISBN: 0-7803-5467-2 page 623, right-hand column, paragraph 2</p>	1-14
A	<p>DAI Y ET AL: "Face-texture model based on SGLD and its application in face detection in a color scene" PATTERN RECOGNITION, PERGAMON PRESS INC. ELMSFORD, N.Y., US, vol. 29, no. 6, 1 June 1996 (1996-06-01), pages 1007-1017, XP004007084 ISSN: 0031-3203 page 1008, right-hand column, paragraph 1 page 1009, left-hand column; figure 3</p>	1-14
A	<p>HJELMAS E ET AL: "Face Detection: A Survey" COMPUTER VISION AND IMAGE UNDERSTANDING, ACADEMIC PRESS, SAN DIEGO, CA, US, vol. 83, no. 3, September 2001 (2001-09), pages 236-274, XP004434095 ISSN: 1077-3142 page 241, paragraph 2</p>	1-14